

I

Nineteenth-Century Modernization in Brazil

Luís Carlos Martins Pena's 1842 romantic comedy *Os Dois ou o Inglês Maquinista* dramatizes the tensions surrounding the clandestine African slave trade in Rio de Janeiro (officially abolished in 1831), the increasing presence of British merchants and engineers on the city's streets, and the arrival of the steam machine, a new technology that signaled the beginning of modernization in nineteenth-century Brazil.¹ Gainer, an English carpetbagger machinist plying his trade in the Brazilian capital, constructs a machine that instantaneously (and, pointedly – with no labor) transforms an entire cow into an array of perfected products ready for market: sugar, combs, hats, polished shoes, and cuts of steak.² Gainer's invention receives a skeptical welcome from the play's handsome and wily protagonist Felício, a native of Rio. The Brazilian archly observes that the Englishman's intricate and seemingly magical machine is too good to be true.³ Counterposed to the scheming English machinist is a Brazilian

¹ The Slave Trade was legally abolished by treaty with Britain in 1831, though illegal slave imports continued, increasing in the 1830s and 1840s to meet the demands of the expanding coffee sector in Brazil.

² Luís Carlos Martins Pena, *Os Dous ou o Inglês Machinista*, in *Comédias* (Rio de Janeiro: H. Garnier, n.d.), pp. 127–28.

³ This Brazilian description of an early encounter with the new inventions of the nineteenth century echoes a more somber portrayal of factory machinery by US writer Herman Melville. In his 1855 short story, "The Tartarus of Maids," the "inscrutable intricacy" of the newly invented paper machines of a Massachusetts mill illustrates the wonder inspired by nineteenth-century technology combined with dismay at the soul-crushing repetitiveness of mechanized work reflected in the wan faces of factory workers. Herman Melville, *Great Short Works of Herman Melville* (New York: HarperCollins Press, 2004), pp. 221–22. Also cited in Judith A. McGaw, *Most Wonderful Machine: mechanization and social change in Berkshire paper making, 1801–1885* (Princeton, NJ: Princeton University Press, 1987), pp. 3–4.

villain Negreiro (equally the target of Felício's scorn), a wealthy slave importer baldly named for his illicit profession.⁴ Through these characters Pena inserts reactions to the beginning of modernization in Brazil into a traditional theatrical narrative of heroes, ingénues, and villains. In doing so, he gestures to the promise and apprehensions unleashed by a then emerging transatlantic modernity and distills a complicated social process into characters embedded within the Brazilian context.

This early representation of technology in Brazilian literature juxtaposes two of the most important issues of the period: Brazil's continuing use of – and indeed, growing dependence on – slavery in an increasingly abolitionist world, and the arrival of the steam machine, the harbinger of even more technological advances to come. For Felício, the character with whom we are meant to empathize (and the one who wins the heart of Mariquinha, the young woman that both Negreiro and Gainer court), neither the greedy excesses of Negreiro nor the scheming opportunism of Gainer pose desirable options; neither Brazil's past nor England's present offer appropriate models for the future. Exploring this dilemma provides a point of entry for understanding Brazilian perspectives on modernization. Though powerful conservative factions remained ardent supporters of slavery up until abolition in 1888, the institution's impending demise cast a long shadow over the reign of Emperor Pedro II (1840–89). Negreiro and his ilk were not the future that many Brazilians envisioned for their nation, despite the ongoing reliance on slavery that drove the clandestine trade until it was definitively ended in 1850. Likewise, new technologies in agriculture and industry were both enthusiastically admired and greeted with skepticism as many outside innovations proved disappointing – at worst oversold, or at best simply impractical for the different geography, climate, infrastructure, and social organization in Brazil. Furthermore, the liberal, English industrial capitalistic system was ultimately potentially dangerous to the social organization of this highly stratified and slavery-dependent tropical nation. Brazil had created a social order that could not become “English” without – it was feared – possibly destroying itself. The specter of slave revolts and mass uprisings coupled with prevailing racist notions about the inability of Africans and their descendants to operate or produce technology made elites cautious about adopting any new system that might uproot their power and privilege. Pena's example therefore provides a useful schematic: the existence of a *Brazilian* way to adopt the social and technological advances of the age in service of

⁴ *Negro* referred to an African or African-descended person, while *negreiro* was both a slave trader and the name for a slave ship.

the nation's progress. Elites, while embracing ideologies and technologies from Europe and beyond did not merely follow in the footsteps of the North Atlantic industrializing nations, they forged their own path based on their material realities, hopes, and fears.

With the aim of understanding the motivations behind Brazilian visions of modernization in the nineteenth century, this work examines how certain sectors of society (specifically, literate white males with connections to Rio) thought about and responded to the technological, economic, and social innovations unfolding in the late colonial period and across the nineteenth century, especially the transformative years of 1850–89 following the political consolidation of the post-independence Brazilian Empire (1822–89). Although modernization is a twentieth-century word that expresses a specific vision of economic and social development relevant to the Cold War era, I use the term here to describe the nexus of transformations that spread across Europe, the Americas, and beyond as a result of the technological, bureaucratic, and economic innovations that emerged in the eighteenth and nineteenth centuries. Modernization had many facets, be they the accumulation of capital and the rise of industrialization, the emergence of a concept of a uniform civil or mass society and the institutional and social innovations that served its collective needs such as public education, national banks, nationalized legal codes and languages, the compilation of statistics, and the surveying of state territories.⁵ Though modernization was never a term used by the Brazilian actors of this study, this definition broadly captures the changes they envisioned and enacted for their nation.

⁵ Craig Calhoun, ed., *Dictionary of the Social Sciences* (Oxford: Oxford University Press, 2002), s.v. “modernity.”

Marshall Berman offers an eloquent description of modernization and modernity:

The maelstrom of modern life has been fed from many sources: great discoveries in the physical sciences, changing our images of the universe and our place in it; the industrialization of production, which transforms scientific knowledge into technology, creates new human environments and destroys old ones, speeds up the whole tempo of life, generates new forms of corporate power and class struggle; immense demographic upheavals, severing millions of people from their ancestral habitats, hurtling them halfway across the world into new lives; rapid and often cataclysmic urban growth; systems of mass communication, dynamic in their development, enveloping and binding together the most diverse people and societies; increasingly powerful national states, bureaucratically structured and operated, constantly striving to expand their powers; mass social movements of people, and peoples, challenging their political and economic rulers, striving to gain some control over their lives; finally, bearing and driving all these people and institutions along, an ever-expanding, drastically fluctuating capitalist world market.

All That is Solid Melts into Air: The Experience of Modernity (New York: Simon & Schuster, 1982), p. 16.

The meaning of modernization employed here should not be confused with modernization theory, a development model created in the middle of the twentieth century as a solution to the underdevelopment of the so-called Third World, especially Latin America where poverty was seen as a national security threat by US policymakers.⁶ Conceived as a counter to Soviet-style communism, modernization theory promoted the creation “... of a dynamic market-based economy... as a generator of wealth at the societal level and as a distributor of wealth across the society.”⁷ The promoters of modernization theory argued that economic growth led to political stabilization and eventually the establishment of democratic institutions.

Modernization: Brazil and Beyond

Processes of nineteenth-century modernization have long intrigued scholars of Brazil, as is evident from a rich body of scholarly work on the development of the industrial, banking, insurance, communication, and transportation sectors.⁸ Of these, two early works, Richard Graham’s

⁶ Rafael R. Ioris, *Transforming Brazil: A History of National Development in the Postwar Era* (New York: Routledge, 2014), p. 3.

⁷ Calhoun, *Dictionary of the Social Sciences*, s.v. “modernization theory.” For a recent treatment of the history of modernization theory in the United States, see Nils Gilman, *Mandarins of the Future: Modernization Theory in Cold War America* (Baltimore: The Johns Hopkins University Press, 2003).

⁸ In addition to Graham and Eisenberg, the following selected works treat aspects of modernization in the imperial period: Humberto Bastos, *O pensamento industrial no Brasil* (São Paulo: Martins Ed., 1952); Geraldo de Beauclair, *Raízes da Indústria no Brasil: a pre-indústria fluminense, 1808–1860* (Rio de Janeiro: Studio F&S Editora, 1992), and *A Construção Inacabada: a economia brasileira, 1822–1860* (Rio de Janeiro: Vício de Leitura, 2001); E. Bradford Burns, *The Poverty of Progress: Latin America in the Nineteenth Century* (Berkeley: University of California Press, 1983); Edgard Carone, *O Centro Industrial do Rio de Janeiro e sua importante participação na economia nacional: 1827–1977* (Rio de Janeiro: Ed. Cátedra/Centro Industrial, 1978); Warren Dean, *The industrialization of São Paulo, 1880–1945* (Austin: Published for the Institute of Latin American Studies by the University of Texas Press, 1969); Marshall Eakin, *British Enterprise in Brazil: the St. John d’el Rey Mining Company and the Morro Velho Gold Mine, 1830–1960* (Durham, NC: Duke University Press, 1989); Peter L. Eisenberg, *The Sugar Industry in Pernambuco: Modernization without change, 1840–1910* (Berkeley: University of California Press, 1974); Noah Elkin, “Promoting a New Brazil: National Expositions and Images of Modernity, 1861–1922” (Ph.D. dissertation, Rutgers University, 1998); Francisco Foot, *Trem Fantasma: A Modernidade Na Selva* (São Paulo: Companhia das Letras; São Paulo: Editora Schwarcz, 1988); Celso Furtado, *Economic Development of Latin America* (Cambridge: Cambridge University Press, 1970); Richard Graham, *Britain and the Onset of Modernization in Brazil: 1850–1914* (Cambridge: Cambridge University Press, 1968); Stephen Haber, ed., *How Latin America Fell Behind:*

Great Britain and the Onset of Modernization in Brazil: 1850–1914 (1968), and Peter Eisenberg's *The Sugar Industry in Pernambuco: Modernization without Change, 1840–1910* (1974), were important scholarly milestones in the English-language historiography on Brazil that investigated the beginning of modernization during the reign of Pedro II (1840–89). The former illuminated the British role in Brazilian modernization, while the latter described the technological advances that improved sugar production in northeastern Brazil even as the social standing and living conditions of those on the lowest rungs of society remained the same.

More recent Brazilian scholarship on modernization explores new lines of inquiry. Leandro Malavota, for example, sheds light on Brazilian

Essays on the Economic Histories of Brazil and Mexico, 1800–1914 (Stanford: Stanford University Press, 1997); Anne G. Hanley, *Native Capital: Financial Institutions and Economic Development in São Paulo, Brazil, 1850–1920* (Stanford: Stanford University Press, 2005); Álvaro Antonio Klafke, “O Império na província: construção do estado nacional nas páginas de *O Propagador da Indústria Rio-grandense- 1833–1834*,” (Master’s thesis, Universidade Federal do Rio Grande do Sul, Brazil, 2006); Douglas Cole Libby, “Proto-Industrialization in a Slave Society: The Case of Minas Gerais,” *Journal of Latin American Studies*, 23:1 (Feb., 1991), pp. 1–35; Heitor Ferreira Lima, *História do Pensamento Econômico no Brasil* (São Paulo: Editora Nacional, 1976); Eulalia Maria Lahmeyer Lobo, *História do Rio de Janeiro (Do Capital Comercial ao Capital Industrial e Financeiro)*, 2 vols., (Rio de Janeiro: Instituto Brasileiro de Mercado de Capitais, 1978); Lourenço, Fernando Antonio, *Agricultura Ilustrada: liberalismo e escravismo nas origens da questão agrária brasileira* (Campinas, SP: Editora Unicamp, 2001); Nícia Vilela Luz, *Luta pela industrialização no Brasil* (São Paulo: Editora Alfa Omega, 1975); Sérgio de Oliveira, *Entrepreneurship in Nineteenth-Century Brazil: The Formation of a Business Environment* (New York: St. Martin’s, 1999); Maria Fernanda Vieira Martins, “O Imperial Instituto Fluminense de Agricultura: elites, política e reforma agrícola (1860–1897),” (Master’s thesis, Universidade Federal Fluminense, 1995); Caio Prado Júnior, *História Econômica do Brasil* (São Paulo: Editora Brasiliense, 1976); Eugene Ridings, *Business Interest Groups in Nineteenth-Century Brazil* (Cambridge: Cambridge University Press, 1994); Luiz Werneck da Silva, “Isto é o que me parece: a Sociedade Auxiliadora de Indústria Nacional (1827–1904) na formação social brasileira: a conjuntura de 1871 até 1877” (Master’s thesis, Universidade Federal Fluminense, 1979); Stanley J. and Barbara H. Stein, *The Colonial Heritage of Latin America: Essays on Economic Dependence in Perspective* (New York: Oxford University Press, 1970); Stanley Stein, *The Brazilian Cotton Manufacture: Textile Enterprise in an Underdeveloped Area, 1850–1950* (Cambridge, MA: Harvard University Press, 1957), and *Vassouras, a Brazilian Coffee County, 1850–1900* (Cambridge, MA: Harvard University Press, 1957); William Summerhill, *Order Against Progress: Government, Foreign Investment, and Railroads in Brazil, 1854–1913* (Stanford: Stanford University Press, 2003); Barbara Weinstein, *The Amazon Rubber Boom 1850–1920* (Stanford: Stanford University Press, 1983), and *The Color of Modernity: São Paulo and the Making of Race and Nation in Brazil* (Durham, NC: Duke University Press, 2015) and Paulo Alfonso Zarth, *Do Arcaico ao Moderno: o Rio Grande do Sul agrário do século XIX* (Ijuí, RS: Editora UNJUI, 2002).

efforts to promote technological innovation through patents. In 1809, one year after the arrival of the Portuguese court in Rio, Dom João VI (then the crown prince) issued the world's fourth modern patent law (following Great Britain, France, and the United States) for Portugal and its colonies. "Patents of introduction" were a unique feature of the law in Brazil (updated after independence in 1830) that provided short-term monopolies of fifteen years to importers of foreign inventions with the aim of encouraging technological dissemination even in the absence of Brazilian innovators. As Malavota shows, the evolution of Brazilian patents in the 1800s demonstrated creativity, foresight, and a keen awareness of North Atlantic legal innovations that resulted in debates and legislation intended to spur economic development in Brazil.⁹

Carlos Gabriel Guimarães' research on the interplay of English and Brazilian interests in the nation's nascent banking sector sheds new light on the domestic and international relationships embedded within this important facet of modernization. A central prong of Guimarães' analysis is the deconstruction of the mythic image of nineteenth-century entrepreneur, banker, and industrialist, the Baron of Mauá (Irineu Evangelista de Souza, 1813–89). Jorge Caldeira and other scholars have cast Mauá as a misunderstood visionary thwarted by conservative, slave-owning agrarian elites from bringing industrialization and economic development to Brazil.¹⁰ Guimarães paints a more complex picture of Mauá and his period in which Brazilian and British interests often coincided; both political conservatives and liberals had business and political relationships with the entrepreneur and indeed supported his many technological projects (railroads, for example); and Mauá (unlike the antislavery advocate he is presented to be in the 1999 film based on Jorge Caldeira's research), invested in the slave trade through his numerous commercial enterprises when it was profitable to do so.¹¹ In Guimarães' work, the trajectory of nineteenth-century Brazilian economic development emerges as a more complex story than the backward,

⁹ Leandro Malavota, *A Construção do Sistema de Patentes no Brasil* (Rio de Janeiro: Editora Lumen Juris, 2011), p. 25.

¹⁰ Carlos Gabriel Guimarães, *A presença inglesa nas finanças e no comércio no Brasil Imperial: os casos da Sociedade Bancária Mauá, MacGregor & Cia. (1854–1866) e da firma inglesa Samuel Phillips & Cia. (1808–1840)* (São Paulo: Alameda Casa Editorial, 2012), pp. 32–4.

¹¹ *Mauá – O Imperador e o Rei*. Directed by Sérgio Rezende. Rio de Janeiro: Riofilms, 1999.

slave-owning plantation elites, British banking interlopers, and thwarted industrialists sometimes blamed for the nation's underdevelopment. In Guimarães' words, Brazil was a "seignorial slave society . . . immersed in a process of expansion of capitalism" and needs to be understood as such in order to avoid anachronistic renderings of economic development as exemplified by the Mauá myth.¹²

A new investigation of Brazilian economic development extends to the twentieth century in Rafael Ioris' analysis of the reception of and support for the postwar economic policies of President Juscelino Kubitschek by previously understudied sectors of Brazilian society. Through the consultation of new sources from the press and underutilized institutional archives, Ioris demonstrates how an expanding domestic consumer market, the mobilization of São Paulo autoworkers, and a growing and vibrant national cultural scene shaped and transformed more traditional conservative politics and the developmentalist policies of postwar Brazil. Together, this recent Brazilian scholarship adds new depth to our understanding of state-supported economic development while also bringing the voices of actors from different (and previously ignored) sectors of Brazilian society into focus, as in the case of Ioris. Most importantly, these works demonstrate that Brazilian economic development in the nineteenth and twentieth centuries was more complex than the reactive enterprise it has sometimes been described to be.

My project expands on these lines of inquiry by focusing on Brazilian perspectives on modernization during the transformative period of the nineteenth century. One analytical thread aims to understand debates published in government reports, journals, illustrated weeklies, national and international exhibition catalogs, and the public opinion sections of newspapers from an explicitly Brazilian perspective, rather than through the lens of foreign influence or as a primarily economic process. The sentiments expressed in public letters enliven the transformations then underway in Brazil and offer a human voice to both counter and complement statistical analysis and economic data. These sources also provide insight into attitudes about modernization where economic sources have not survived or do not exist. By contrasting official documents with the usually anonymous public letters printed in one of Rio's most important newspapers of record, the *Jornal do Commercio*, Brazilian attitudes about the technological and social transformations of the period come

¹² Guimarães, pp. 46–7.

into view. Each of the following chapter topics first evolved out of public letters and paid articles published in the *Jornal do Commercio*.

First, a brief review of selected scholarship on the English Industrial Revolution, one of the most important topics of eighteenth- and nineteenth-century modernization, is in order. Late eighteenth- and nineteenth-century advances in agricultural technology and industry in Europe – and England in particular – were integral to conversations about modernization in Brazil. The profound changes that resulted from the English Industrial Revolution (1760–1840) emerged as a subject of scholarly inquiry even as it was still unfolding in the nineteenth century. Looking back on more than a century and a half of scholarship on the topic, historians in the 1980s and 1990s set out to analyze the conflicting interpretations of the roots, causes, and outcomes of industrialization. In her classic 1992 synthetic analysis, Pat Hudson argued that the Industrial Revolution was more than a series of events centered in mechanized factories, or even the direct result of mechanization and capital accumulation per se. Instead, it was a complex socio-economic, political, and cultural process that unfolded over many decades and depended on the participation of diverse sectors of society. Industrialization, she contended, must therefore be understood as more than an economic process alone, despite a long-standing focus on this aspect in scholarship. The availability of economic data (primarily from larger enterprises) was (and is) more readily available and quantifiable than the sometimes nebulous and harder to study cultural and social relationships that undergirded new industrial work systems, one reason many of the early studies of the Industrial Revolution focused on economic growth.

Hudson concluded that the Industrial Revolution was indeed revolutionary in terms of its economic and social impact, but this was neither a full-speed-ahead gallop into exclusively mechanized production nor did it result in the overnight creation of uniform economic growth. Traditional modes of production continued alongside factory machines, and in some cases even outperformed mechanical innovations well into the nineteenth century.¹³ The late eighteenth-century success of English calico print production, for instance, depended less on mechanization and more “on a cheap workforce prepared to carry out labour-intensive processes on a

¹³ Pat Hudson, *The Industrial Revolution* (London: Edward Arnold, 1992), p. 46. See also, Maxine Berg and Pat Hudson, “Rehabilitating the Industrial Revolution.” *The Economic History Review*, New Series, Vol. 45, No. 1 (Feb., 1992), pp. 24–50; and David Cannadine, “The Present and the Past in the English Industrial Revolution 1800–1900.” *Past and Present*, 103 (1984), pp. 131–72.

new scale and under new organization and discipline in a competitive setting.”¹⁴ In the agricultural sector, machinery that reduced the number of workers needed during sowing in some cases resulted in a shortage of hands during the crucial, labor-intensive harvest period, making it difficult for farmers to bring in their crops.¹⁵ These points are important to remember when considering the relative backwardness of less developed nations like Brazil. While the intention here is not to diminish the importance of factory mechanization – and the economic and social reorganization it entailed – but rather to note that machinery was not always the most efficient or advantageous mode of production in spurring economic growth. In fact, manual labor, traditional modes of production, and slavery employed in nations and colonies on the periphery of the first wave of European and US industrialization contributed enormously to the economic success of the Industrial Revolution. Slave-produced cotton from the US South, as is well known, fueled textile production in Northern factories as well as Britain until supply chains were disrupted by the Civil War.¹⁶

This work also situates nineteenth-century Brazilian modernization within a recent historiography that further challenges and adds nuance to the traditional, triumphalist narrative of the English Industrial Revolution. Jeff Horn’s examination of France’s delayed industrialization compared to England revealed that the fear of popular revolts after the French Revolution resulted in industrialists taking a more cautious approach to negotiations with factory laborers in the late 1700s. This reticence translated into greater rights and freedoms for French workers than were attained by their counterparts in England. By the 1830s, after the specter of political violence unleashed during the French Revolution had receded, French factory owners backed by the state were more willing to press their demands upon the laboring classes in a manner that echoed the coercive and sometimes violent treatment of protesting English laborers around the turn of the nineteenth century.¹⁷ Concern with social upheaval was

¹⁴ Hudson, p. 48. ¹⁵ Hudson, p. 69.

¹⁶ Ed Baptist’s recent work on the role of slavery in the production of one of the most important raw materials of the Industrial Revolution, cotton, demonstrates the link between burgeoning textile production in the industrializing North and slave labor in the South, *The Half has never Been Told: Slavery and the Making of American Capitalism* (New York: Basic Books, 2014), pp. 317–324.

¹⁷ Jeff Horn, *The Path not Taken: French Industrialization in the Age of Revolution, 1750–1830* (Cambridge, MA; The MIT Press, 2006), Chs. 4–6; for works on the coercive tactics employed against workers in England, see Hudson, p. 32; and E. P. Thompson, *The Making of the English Working Class* (New York: Vintage Books, 1963).

also present in nineteenth-century Brazil, albeit for different reasons, as will be explored further in Chapters 2 and 6. Likewise, the collected essays in Horn, Rosenband, and Smith's *Reconceptualizing the Industrial Revolution* challenge the established narrative of England as an exceptional site for the first wave of industrialization, while still acknowledging its important role. A central contribution of the volume is the extension of the context of the Industrial Revolution beyond England with essays that consider Brazil, India, Japan, Russia, Germany, the United States, and Scandinavia.¹⁸

A re-visioning of Latin American industrialization has also emerged in recent scholarship. Fernando Rocchi's study of Argentina between 1870 and 1930, for example, contradicts the traditional narrative of a nation dependent on agricultural exports with a conservative landholding elite hostile to industry that resulted in sluggish manufacturing development before 1914 (a sentiment that echoes the Mauá myth in Brazil). Rocchi argues that a "middling industrialization" that served a fledgling domestic consumer market was more robust during the period than previously acknowledged. Furthermore, Rocchi demonstrates that a section of powerful landholding elites supported industries that employed key agricultural commodities produced in Argentina.¹⁹ Yovanna Pineda also examines industrial production during the years of 1890–1930, arguing that despite Argentina's less robust industrial development compared to North Atlantic nations, the state nonetheless steadfastly supported industrialization, recognizing that it "helped Argentina stay globally connected," through the importation of the latest technology and by providing access to foreign investment. These recent works demonstrate that Latin American nations were fully aware of the potential benefits of industrialization despite the ongoing importance of the agrarian sector to their economies.²⁰

Whereas the previously mentioned scholars bring to light understudied aspects of Argentine industrialization, Edward Beatty's work on technology transfer to Mexico between 1870 and 1930 explores the reasons why the adoption of sewing machines, bottle-making factories, and the cyanide

¹⁸ Jeff Horn, Leonard N. Rosenband, and Merritt Roe Smith, eds., *Reconceptualizing the Industrial Revolution* (Cambridge, MA: MIT Press, 2010).

¹⁹ Fernando Rocchi, *Chimneys in the Desert: Industrialization in Argentina During the Export Boom Years, 1870–1930* (Stanford: Stanford University Press, 2006), chs. 1 and 2.

²⁰ Yovanna Pineda, *Industrial Development in a Frontier Economy: The Industrialization of Argentina, 1890–1930* (Stanford: Stanford University Press, 2009), p. 17.